



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE

United States Patent and Trademark Office

Address: COMMISSIONER FOR PATENTS

P.O. Box 1450

Alexandria, Virginia 22313-1450

www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/797,580	03/11/2004	Anton Dietrich	3691-661	4818
23117 7590 09/18/2009 NIXON & VANDERHYE, PC 901 NORTH GLEBE ROAD, 11TH FLOOR ARLINGTON, VA 22203				
EXAMINER				
PIZZALI, ANDREW T				
ART UNIT		PAPER NUMBER		
1794				
MAIL DATE		DELIVERY MODE		
09/18/2009		PAPER		

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

### Office Action Summary

**Application No.**

10/797,580

**Applicant(s)**

DIETRICH ET AL.

**Examiner**

Andrew T. Piziali

**Art Unit**

1794

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 02 July 2009.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1, 2, 4-6, 8 and 11-14 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1, 2, 4-6, 8 and 11-14 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 11 March 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/808)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

**DETAILED ACTION**

***Continued Examination Under 37 CFR 1.114***

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 6/3/2009 has been entered.

***Claim Rejections - 35 USC § 103***

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1, 4-6 and 11-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over USPN 5,837,361 to Glaser in view of USPN 5,153,054 to Depauw in view of USPN 5,557,462 to Hartig.

Glaser discloses (see entire document including column 3, lines 17-66 and column 4, lines 45-58) a coated article comprising a coating supported by a glass substrate, the coating comprising at least the following layers from the glass substrate outwardly:

a dielectric layer

a zinc oxide layer preferably 16 to 25 nm (160 to 250 Å)

a silver layer

a nichrome oxide layer

a dielectric layer

a zinc oxide layer

a silver layer

a nichrome oxide layer preferably 0.5 to 6 nm (5 to 60 Å)

a tin oxide layer preferably 2 to 35 nm (20 to 350 Å).

Glaser is silent with regards to silver layer thickness, therefore, it would have been obvious to look to the prior art for conventional silver layer thicknesses. Hartig provides this conventional teaching showing that it is known in the art to select a second silver layer thickness that is thicker than the first silver layer thickness (see entire document including the paragraph bridging columns 10 and 11). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to make the second silver layer thickness greater than the first silver layer thickness, motivated by a desire to achieve a low emissivity.

Glaser does not specifically mention adding a zinc oxide layer above one or more of the sacrificial nichrome layers, but Depauw discloses that it is known in the art to add a 5 to 14 nm thick (50 to 140 Å thick) zinc oxide layer above sacrificial metal layers to protect the silver layer from corrosion (see entire document including column 3, lines 14-37). Depauw even discloses that the location of the zinc oxide layer above the sacrificial metal layers is particularly important (column 4, lines 6-18). It would have been obvious to one having ordinary skill in the art at the

time the invention was made to place said zinc oxide layer above each of the overlying sacrificial metal layers, because the zinc oxide layers would protect the silver layers against corrosion.

Although Glaser teaches a first dielectric layer comprising zinc oxide having a thickness of 16 to 25 nm (160 to 250 Å), Depauw discloses that it is known in the art that the thickness may be varied based on a balance between good protection to the adjacent layers and avoiding physical weakness and chemical reactivity (column 7, lines 32-40). Depauw specifically recommends a thickness of 5 to 15 nm (50 to 150 Å) (column 7, lines 32-50). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to vary the thickness of the first dielectric layer comprising zinc oxide to between 5 and 15 nm (50 to 150 Å), because it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art.

Glaser does not specifically mention heat treating (thermally tempering) the coated article, but Depauw discloses that it is known in the art to heat treat an article to make it suitable for automotive applications (column 4, lines 25-40). It would have been obvious to one having ordinary skill in the art at the time the invention was made to heat treat the article, because heat treating allows for use of the coated article in automotive glass applications. Considering that the coated article is substantially identical in terms of substrate, structure, layer materials, and layer thicknesses, compared to the claimed article (and the article taught by the specification) it appears that the coated article inherently possesses the claimed visible transmission, sheet resistance, and normal emissivity.

The Patent and Trademark Office can require applicants to prove that prior art products do not necessarily or inherently possess characteristics of claimed products where claimed and prior art products are identical or substantially identical, or are produced by identical or substantially identical processes; burden of proof is on applicants where rejection based on inherency under 35 U.S.C. § 102 or on prima facie obviousness under 35 U.S.C. § 103, jointly or alternatively, and Patent and Trademark Office's inability to manufacture products or to obtain and compare prior art products evidences fairness of this rejection, *In re Best, Bolton, and Shaw*, 195 USPQ 431 (CCPA 1977).

Regarding claims 4-6, Glaser discloses that the dielectric layers may comprise silicon nitride and/or a layer of tin oxide (column 3, lines 26-66).

Regarding claims 11-14, considering that the coated article is substantially identical in terms of substrate, structure, layer materials, and layer thicknesses, compared to the claimed article (and the article taught by the specification) it appears that the coated article inherently possesses the claimed properties.

Regarding claims 12-14, Glaser discloses that the coated article may be laminated to another glass substrate (column 4, lines 25-33).

4. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over USPN 5,837,361 to Glaser in view of USPN 5,153,054 to Depauw in view of USPN 5,557,462 to Hartig as applied to claims 1, 4-6 and 11-14 above, and further in view of any one of USPN 6,316,110 to Anzaki or USPN 6,398,925 to Arbab.

The applied prior art does not specifically mention adding aluminum to the zinc oxide layers, but Anzaki and Arbab each disclose that it is known in the art to add aluminum to zinc oxide layers that protect a silver layer from oxidation to improve adhesion to the silver layers and/or to make the zinc oxide layer conductive (see entire documents including column 1, lines 42-51 of Anzaki and column 4, lines 20-32 of Arbab). It would have been obvious to one having ordinary skill in the art at the time the invention was made to make the zinc oxide layers from any suitable zinc oxide material, such as zinc oxide comprising aluminum, because the aluminum improves adhesion to the silver layers and/or because the aluminum makes the zinc oxide conductive, and because it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability.

5. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over USPN 5,837,361 to Glaser in view of USPN 5,153,054 to Depauw in view of USPN 5,557,462 to Hartig as applied to claims 1, 4-6 and 11-14 above, and further in view of any one of USPN 6,472,636 to Baldwin or USPN 6,492,619 to Sol.

Glaser discloses that the first dielectric layer may comprise silicon nitride (column 3, lines 26-66), but Glaser does not appear to mention Si-rich silicon nitride. Baldwin and Sol each disclose that it is known in the art to use Si-rich silicon nitride dielectric layers because Si-rich silicon nitride layers reduce haze and/or improve mechanical durability (see entire documents including column 5, line 30 through column 6, line 14 of Baldwin and column 6, lines 15-65 of Sol). It would have been obvious to one having ordinary skill in the art at the time the invention was made to use a Si-rich silicon nitride dielectric layer for the first dielectric layer of Glaser, because Si-rich silicon nitride layers reduce haze and/or improve mechanical durability.

***Response to Arguments***

6. Applicant's arguments filed 6/3/2009 have been fully considered but they are not persuasive.

The applicant asserts that Glaser only discloses a single IR reflecting layer. The examiner respectfully disagrees. Glaser discloses that several IR reflecting layers may be present (column 3, lines 17-24 and column 4, lines 45-58).

The applicant asserts that Glaser fails to teach or suggest the claimed third layer comprising zinc oxide. Applicant's argument is not persuasive because one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986). Although Glaser does not specifically mention adding a zinc oxide layer above one or more of the sacrificial nichrome layers, Depauw discloses that it is known in the art to add a 5 to 14 nm thick (50 to 140 Å thick) zinc oxide layer above sacrificial metal layers to protect the silver layer from corrosion (see entire document including column 3, lines 14-37). Depauw even discloses that the location of the zinc oxide layer above the sacrificial metal layers is particularly important (column 4, lines 6-18). It would have been obvious to one having ordinary skill in the art at the time the invention was made to place said zinc oxide layer above each of the overlying sacrificial metal layers, because the zinc oxide layers would protect the silver layers against corrosion.

The applicant asserts that Glaser would not be motivated to decrease the thickness of the first zinc oxide layer because a thinner zinc oxide layer would increase the emissivity of the article. Applicant's argument is not persuasive.



Firstly, Glaser merely discloses that the first zinc oxide thickness is "preferably" 16 to 35 nm (column 3, lines 40-43). Depauw discloses that it is known in the art that the thickness may be varied based on a balance between good protection to the adjacent layers and avoiding physical weakness and chemical reactivity (column 7, lines 32-40). Depauw specifically recommends a thickness of 5 to 15 nm (50 to 150 Å) (column 7, lines 32-50). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to vary the thickness of the first dielectric layer comprising zinc oxide to between 5 and 15 nm (50 to 150 Å), because it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art.

Secondly, the problem motivating the patentee (Glaser) may be only one of many addressed by the patent's subject matter. The question is not whether the combination was obvious to the patentee (Glaser) but whether the combination was obvious to a person with ordinary skill in the art. Under the correct analysis, any need or problem known in the field of endeavor at the time of invention and addressed by the patent can provide a reason for combining the elements in the manner claimed. *KSR v. Teleflex*. In the current case it is understood by one of ordinary skill in the art that the zinc oxide layer thickness determines properties such as emissivity, production time, product thickness, and cost. Therefore, it would have been obvious to one skilled in the art to slightly decrease the zinc oxide layer thickness to slightly increase the emissivity (some applications require a product with a higher emissivity), reduce production time, reduce product thickness, and/or reduce costs.

***Conclusion***

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Andrew T. Piziali whose telephone number is (571) 272-1541. The examiner can normally be reached on Monday-Friday (8:00-4:30).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Larry Tarazano can be reached on (571) 272-1515. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Andrew T Piziali/  
Primary Examiner, Art Unit 1794